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ABSTRACT

This study investigated the development of the Comprehensive Learning and Study Strategies Questionnaire (CLASS-Q), which was designed to assess students' strategy beliefs and use in the context of an academic course. The CLASS-Q, which is administered within 24 to 48 hours of a course examination, consists of 3 parts, given in this order: a set of open-ended questions, a set of general statements about strategy beliefs and practices, and a section of 3 presentations of 23 strategies each for students to rate the usefulness of "in general," "in this course," and "their actual use to prepare for the course test." Participants were 51 college students. Findings indicate that when students responded to open-ended questions, they reported using their texts and notes most often and for test preparation. Students' responses to the general statements of strategy use and beliefs indicated metacognitive awareness of choosing and evaluating strategies. Finally, students' responses to the conditions indicated that although they may consider a strategy useful in general and in that course, they may have chosen not to use it for preparing for the examination. (Contains 11 references.) (Author/SLD)

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Running Head: DEVELOPMENT OF THE COMPREHENSIVE LEARNING

Development of the Comprehensive Learning and Study Strategies Questionnaire (CLASS-Q)

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Abstract

This study investigated the development of The Comprehensive Learning and Study Strategies Questionnaire (CLASS-Q) which was designed to assess students' strategy beliefs and use in the context of an academic course. The CLASS-Q is administered within 24 to 48 hours of a course exam and consists of three parts, given in this order: a set of open-ended questions, a set of general statements about strategy beliefs and practices, and a section consisting of three presentations of 23 strategies each for students to rate the usefulness of in general, in this course, and their actual use to prepare for the course test. Findings indicate that when students' responded to open-ended questions, they reported using their texts and notes most often and for test preparation. Students' responses to the general statements of strategy use and beliefs indicated metacognitive awareness of choosing and evaluating strategies. Finally, students' responses to the conditions indicated that, although they may consider some strategies useful in general and in that course, they may have chosen not to use it for preparing for their exam.

Purposes

Learners need to be aware of strategies and their usefulness, and to know how to implement these strategies effectively (e.g., Borkowski, 1992; Garner & Alexander, 1989). However, it is difficult to determine students' knowledge and awareness of strategies in classroom contexts. It is not clear from students' reports and performance measures what they actually know and choose to do about strategies. Two current measures of strategy use in self-regulated learning have contributed much to our understanding: The Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, Smith, Garcia, & McKeachie, 1991) and The Learning and Study Strategies Inventory (LASSI) (Weinstein, Palmer, & Schulte, 1987). However, as addressed in the "Theoretical Framework" section of this proposal, there are several questions that remain unanswered even when these measures of strategy use are utilized.

The CLASS-Q was developed as a comprehensive measure to yield more specific measures of students' strategy use, to determine more precisely the nature of students' knowledge, use, and perceived value of strategies in the ecologically valid context of an academic course. The goal of this pilot study was to develop a more accurate method of measuring students' knowledge and use of strategies. The CLASS-Q uses both qualitative and quantitative measures. Of primary concern is increased understanding of students' personal choices regarding their perceived need for strategy use, their knowledge and beliefs about study strategies, why and how they make the choices they do, and how efficacious these choices are. Also of interest is the use of both qualitative and quantitative items to more accurately determine if differences exist between these two data collection methods. If differences exist, what is the nature of the differences between (a) students' awareness of vs. actual use of learning strategies, (b) spontaneous self-reports vs. inventory reporting, and (c) reasons for strategy use. The CLASS-Q was designed to get a better understanding of students' knowledge and beliefs about study strategies, their choices in strategy use and why they made them, and the effectiveness of their strategy use. This research will help us better document the use of learning strategies in the context of an academic course and evaluate strategy effectiveness as related to actual classroom performance.

Theoretical Framework

Self-regulated learning is a complex activity that integrates metacognition, motivation, and learning behaviors (strategies) (Pintrich & DeGroot, 1990). Learning is an active process, and ultimately, individuals need to develop self-regulation of their own comprehension and mastery of knowledge (Bransford, 1979). As we study learning in classroom contexts, we need to understand self-regulation and strategy use. Effective learners choose a strategic approach to a problem, and then implement, monitor, and adjust it as needed (Borokowski, 1992). However, not all learners recognize the need for employing a strategy (i.e., a perceived academic "problem" to solve). For example, if students are unaware of not knowing material or think mistakenly that they do know it, how will this affect their strategy use? Similarly, students may be ineffective in implementing, monitoring, and adjusting a strategy once they have selected one.

Studies examining self-regulated learning have provided evidence for complex interrelationships between strategy use, metacognition, motivation and volition, and epistemological beliefs. According to some studies, use of learning strategies is correlated with learning goals (Pintrich, 1986) and metacognitive awareness (Schraw & Dennison, 1994) among college students. Additionally, cognitive and metacognitive self-regulated strategy use is related to intrinsic task value in seventh-graders (Pintrich & DeGroot, 1990). Similarly, college students' regulation of cognition (including learning behaviors) is correlated with two sub-components of motivation: task value and intrinsic goal orientation (Hammann & Stevens, 1998). Finally, epistemological beliefs may predict strategy use, motivation, and achievement (Garrett-Ingram, 1996). Current research in strategies has suggested linkages to monitoring, performance measures, assessment methods, and learning-to-learn courses. While this research has contributed greatly to our knowledge in this area, there are still questions that need to be addressed further by research. These questions involve the validity of self-report measures, the accuracy of students' responses on strategies questionnaires, the specific mechanisms underlying the acquisition of a repertoire of effective strategies, and the domain-specific vs. domain-general nature of strategies.

Many questions remain that research in this area has not fully answered. Students may not be able to accurately describe their strategy use when they complete verbal protocols about their strategy use. When they complete inventories on strategic behavior, students may over- or underestimate their strategy use. This suggests that students may not be aware enough to report their behaviors accurately. When student studying is directly observed, it is difficult to determine why discrepancies exist between observed and reported behaviors, and what else actually is "going on" in the learning task. In all of these methods, students' motivation and metacognition are important yet hard-to-determine factors that may influence their behaviors. Research findings show discrepancies between (a) observed and reported behaviors (Brennan, Winograd, Bridge, & Hiebert, 1986); (b) performance measures and reported strategy use (Cole, 1998); (c) verbal reports and observation (Brown, 1987); and (d) what students know and what they report they know (Tobias & Everson, 1998). Four main questions guided the development of the CLASS-Q:

1) What do students report when asked qualitative questions about their strategy use (without prompting)?
2) To what extent do students have "strategy awareness" (i.e., what is a strategy, when should strategies be used) vs. their actual strategy use? Do students know how to do strategies that they simply choose not to use in this class/specific contexts?
3) To what extent do students understand the differences of using certain strategies "in general" vs. in a "specific course"?

When students are first asked to tell about their strategies, will their responses be consistent with answers when they are asked on an inventory?

Methods

Subjects were 51 volunteers from three introductory educational psychology courses at a large eastern university. Three questionnaires (CLASS-Q, Parts I, II, and III) to assess strategy use were developed and administered over the course of this study. The questionnaires were administered so that participants had to fill them out in order and were not able to look back at their responses on previous sections.

The CLASS-Q Part I is an in-depth qualitative questionnaire with open-ended questions on learning and study strategies (e.g., "What is a study strategy and when should study strategies be used?" and "How and when do you decide if a strategy is working effectively?"). CLASS-Q Part II is a 58-item Likert-type scale, consisting of statements regarding the general nature of studying and students' beliefs and practices about strategy use (e.g., "One should have a routine for studying for tests in this class." and "When I begin studying, I am not sure how to go about it most effectively."). CLASS-Q Part III is divided into three sets of 23 items on a Likert scale. Students were asked to respond the relative importance of strategies like "reviewing lecture notes," "having perfect attendance," and "getting a tutor" from three different perspectives: In Part IIIA, subjects are asked to decide whether *in general*, the strategy mentioned seems useful. In IIIB, subjects are asked to decide whether *in this course*, the strategy seems useful. Finally, in IIIC, subjects are asked to indicate whether *in this course, they actually performed the strategy* to prepare for the test. Other materials included a Demographics Questionnaire and a CLASS-Q Feedback Survey.

The responses on the qualitative portion (Part I) of the CLASS-Q were recorded, tallied, and categorized to determine the general trend of responses in this sample of students. The responses on the quantitative portions (Parts II & III) were recorded and used to determine sample averages and percentages of responses on each of the items. In addition, data for group responses on a number of items on Parts II and III will be used to determine the nature of the relationships between certain types of responses. For example, the general trend for some strategies may be that they seem relatively important in general, but the students don't actually use them when they are studying. Other strategies may not have the highest rating on relative importance, but students do indeed use them when studying.

Results and Conclusions

Research Question 1: *What do students report when asked qualitative questions about their strategy use (without prompting)?* Students' responses to the qualitative questions on CLASS-Q Part I indicated that a majority of the students stated that strategies are very important for success (57%), as opposed to only 10% who felt that they were somewhat important. However, only 33% of

the students felt that their strategies were effective, while a moderate number (27%) reported their strategies to be only partially or somewhat effective.

Research Question 2: *To what extent do students have "strategy awareness" (i.e., what is a strategy, when should strategies be used) vs. their actual strategy use?* Responses indicate that students may not have or be aware of the criteria they should be using to select strategies. In Part I, students were asked, "What are your specific methods/criteria for choosing the strategies that you use to prepare for tests like these?" The responses were 37%, no answer/no method; 18%, always done it/seems to work for me; 10%, depends on class information; 8%, depends on type of test. Interestingly, in the quantitative portion of the questionnaire, they reported a relatively high awareness of which strategies to use and when to use them. On a 5-point scale, participants reported a mean of 4.06 (SD=1.03) suggesting they agree with the statement, "I know of specific strategies for studying for tests in this class".

Research Question 3: *To what extent do students understand the differences of using certain strategies "in general" vs. in a "specific course"?* Part III of the questionnaire was specifically designed to assess the difference in students' (a) perceptions of the usefulness of a given strategy *in general*, (b) perceptions of the usefulness of a given strategy *in this class*, and (c) whether the student *actually used* the strategy for this exam. Interestingly, some strategies listed in part III showed consistency across students' responses, while others showed a marked decline in students' perceptions of usefulness or actual use on the exam. A one-way ANOVA was used to determine whether the sample means were significantly different (Table 1).

Research Question 4: *When students are first asked to tell about their strategies, will their responses be consistent with answers when they are asked on an inventory?* Preliminary analyses of both the qualitative and quantitative portions of the CLASS-Q indicated that students' responses are consistent in certain areas but inconsistent in others. For example, students consistently reported that they relied heavily on their notes rather than on the textbook. In contrast, students often reported inconsistently with regard to how and when they decide that a strategy is working effectively. For

example, on the qualitative portion of the CLASS-Q, 68% of the students reported that they decided whether a strategy was effective after receiving their grades. In contrast, students reported a mean of 3.68 (on a scale of 5, SD=.89) when presented with the item, "As I am preparing for a test, I am able to tell if my strategies are effective."

Although further analyses are currently being conducted to help answer all four research questions, preliminary results provide evidence suggesting that we need to consider certain possible discrepancies in student reports of strategy knowledge and use in order to improve our current theories or conclusions about strategy acquisition and use.

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Table 1:

Means for Students' Reported Understanding of Strategy Usefulness Across Three Contexts

	In General		In This Class		Used for This Test	
	Mean	SD	Mean	SD	Mean	SD
Taking lecture notes	4.80	.45	4.80	.40	4.75	.84
Reviewing lecture notes	4.84	.46	4.73	.60	4.73	.80
Reading all assigned materials before the day day topic is discussed	4.18*	.97	3.96*	1.22	2.61*	1.44
After reading a section or chapter in text, summarizing main points by writing them or saying them to yourself	3.62*	1.21	3.55*	1.27	2.43*	1.32

*$p<.05$